

What I Claim Is:

1. An architecture for facilitating wavelength-specific and packet-switched routing comprising:

a primary metropolitan fiber ring;

a primary distribution/aggregation node in said primary metropolitan fiber ring;

and

a local service domain further comprising a secondary aggregation node in communication with said primary distribution/aggregation node.

2. The architecture according to claim 1, wherein said primary distribution/aggregation node further comprises:

a distribution node;

an aggregation node;

a plurality of wavelength packet header readers;

a plurality of wavelength packet cross-switches in communication with said plurality of wavelength packet header readers;

a look-up table in communication with said plurality of wavelength packet header readers;

a switch controller circuit;

a bi-directional Lambda 1 to Lambda "n" converter and packet generator in communication with said plurality of wavelength packet cross-switches;

a wavelength packet cross-connect in communication with said Lambda 1 to Lambda "n" converter and packet generator; and

a remultiplexer in communication with said plurality of wavelength packet cross-switches.

3. The architecture according to claim 2, wherein said switch controller circuit switches a particular wavelength to said remultiplexer via one of said plurality of wavelength packet cross-switches if a packet header does not match a local customer address in said look-up table.

4. The architecture according to claim 2, wherein said distribution node further comprises:

a plurality of local distribution wavelength packet switches in communication with said plurality of wavelength packet cross-switches;

a local distribution wavelength packet router in communication with said plurality of local distribution wavelength packet switches; and

a plurality of wavelength packet multiplexers in communication with said plurality of local distribution wavelength packet switches.

5. The architecture according to claim 4, wherein said local distribution wavelength packet router distributes packets to a customer's premises.

6. The architecture according to claim 4, wherein said local distribution wavelength packet router distributes specific wavelengths to a customer's premises.

7. The architecture according to claim 4, wherein said plurality of wavelength packet multiplexers is in communication with said remultiplexer.

8. The architecture according to claim 4, wherein said plurality of wavelength packet cross-switches can be controlled via a separate radio control layer.

9. The architecture according to claim 4, wherein said look-up table and said switch controller circuit assign switching sequences and output ports that correspond to a customer's premises.

10. The architecture according to claim 4, wherein said switch controller circuit governed by said look-up table sets up sequential time-slot switching.

11. The architecture according to claim 5, wherein said packets are distributed to said customer's premises via one of millimeter wave radio, fiber and free space optical communications.

12. The architecture according to claim 6, wherein said specific wavelengths are distributed to said customer's premises via one of millimeter wave radio, fiber and free space optical communications.

13. The architecture according to claim 4, wherein said plurality of wavelength packet multiplexers combine multiple sources of data, including a specific